

### ABSTRACT OF THE DISCLOSURE

Branched, substantially unsaturated fatty alcohol sulfates are produced by a process which comprises the steps of: (a) dimerizing unsaturated C<sub>16-22</sub> fatty acid to form a dimer fraction and a monomer fraction comprised of branched, substantially unsaturated fatty acids and straight chain saturated fatty acids, (b) removing the monomer fraction from the dimerization step, (c) converting the branched, substantially unsaturated fatty acids from step (b) into the corresponding fatty acid methyl esters, (d) hydrogenating the branched, substantially unsaturated fatty acid methyl esters with the double bonds intact to form the corresponding branched, substantially unsaturated fatty alcohols and (e) sulfating and neutralizing the branched, substantially unsaturated fatty alcohols. The fatty alcohol sulfates thus produced exhibit improved performance properties and greater oxidative stability than standard unsaturated fatty alcohol sulfates.